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SPECIFICATION FOR PARALLEL RULERS, 150 mm (LINK TYPE)

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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November 1968

Indian Standard

SPECIFICATION FOR PARALLEL RULERS, 150 mm (LINK TYPE)

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Indian Standard
SPECIFICATION FOR PARALLEL RULERS, 150 mm (LINK TYPE)

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 25 September 1968, after the draft finalized by the Optical and Mathematical Instruments Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 Parallel rulers are used commonly in drawing offices for drawing parallel lines.

0.3 This standard deals with the requirements of parallel rulers of link type having a four bar mechanism and effective length of 150 mm. For larger sizes, parallel rulers operating on other principles are used but they are not covered by this standard.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirements of link type parallel rulers of 150 mm length commonly used by topographers and draftsmen.

2. MATERIAL

2.1 The rulers shall be made of *adina cordifolia*, ebony, rosewood, plastic or aluminium.

2.1.1 Ebony and rosewood used for the manufacture of parallel ruler shall be of uniform colour, free from shakes, knots and sapy wood.

2.1.2 Moisture content of the wood shall not exceed 12 percent (*see* IS : 287-1960†).

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*Rules for rounding off numerical values (*revised*).

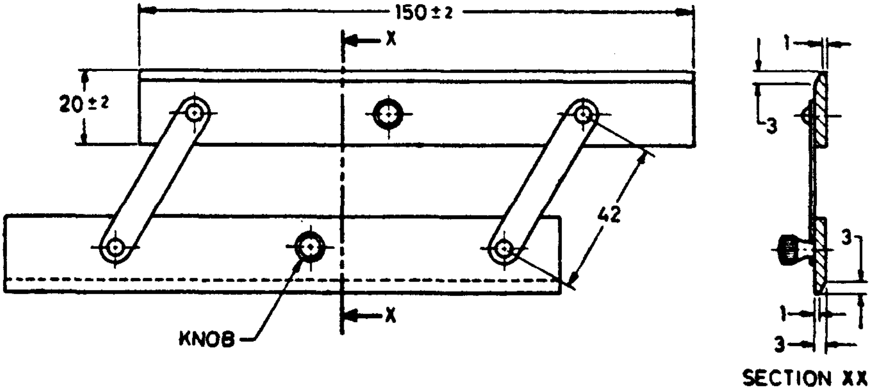
†Recommendation for maximum permissible moisture content of timber used for different purposes in different climatic zones (*revised*).

2.2 Links, Pivots and Knobs — The connecting lines, pivots and knobs shall be made from the following materials:

a) *Link* — Stainless steel, mild steel, nickel-silver or brass.
b) *Pivot* — Steel, aluminium or brass.
c) *Knob* — Plastic, wood, aluminium or any other suitable metal.

3. DIMENSIONS

3.1 The dimensions of the finished parallel rulers shall be as given in Fig. 1.



All dimensions in millimetres.

FIG. 1 DIMENSIONS FOR PARALLEL RULERS, 150 mm (LINK TYPE)

4. CONSTRUCTION

4.1 The ruler shall be perfectly flat and the edges true and parallel to each other. The top outside edge of one ruler and the lower outside edge of the other shall be bevelled as shown in Fig. 1.

4.2 The two connecting links shall be fixed on the rulers with the pivot to give a smooth and free movement to the rulers. The fixing shall be such that rubbing between the link and the ruler is avoided.

4.3 The holes in the ruler and the pivots shall not allow any play or shake when slided.

4.4 Two knobs shall be fitted, one on each ruler, to hold the rulers while working.

4.5 The securing pivots shall be fixed in the rulers so as not to rotate or shake.

5. FINISH

5.1 Rulers shall be smooth finished and polished and the metal parts polished and nickel-plated or lacquered.

6. ACCURACY

6.1 When the ruler is extended in different position, successive lines made shall be parallel to each other. The parallel line drawn by the ruler shall remain throughout its length, within a zone of 0·2 mm width from the true position of reference line.

7. TEST

7.1 The following performance test shall be conducted for acceptance:

After ascertaining the accuracy of the ruler as given in **6.1** the two rulers shall be opened and closed 50 times from one extreme to the other extreme in quick succession. After this test th parallelism shall be inspected which shall be within the limits given in **6.1.**

8. MARKING

8.1 Each ruler shall be marked with the manufacturer's initials and trade-mark. The year of manufacture may also be marked if desired by the purchaser.

8.1.1 The rulers may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Conversion*
Force	newton	N	1 N = 1 kg. 1 m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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